













FERC Initiatives Supporting Renewable Energy

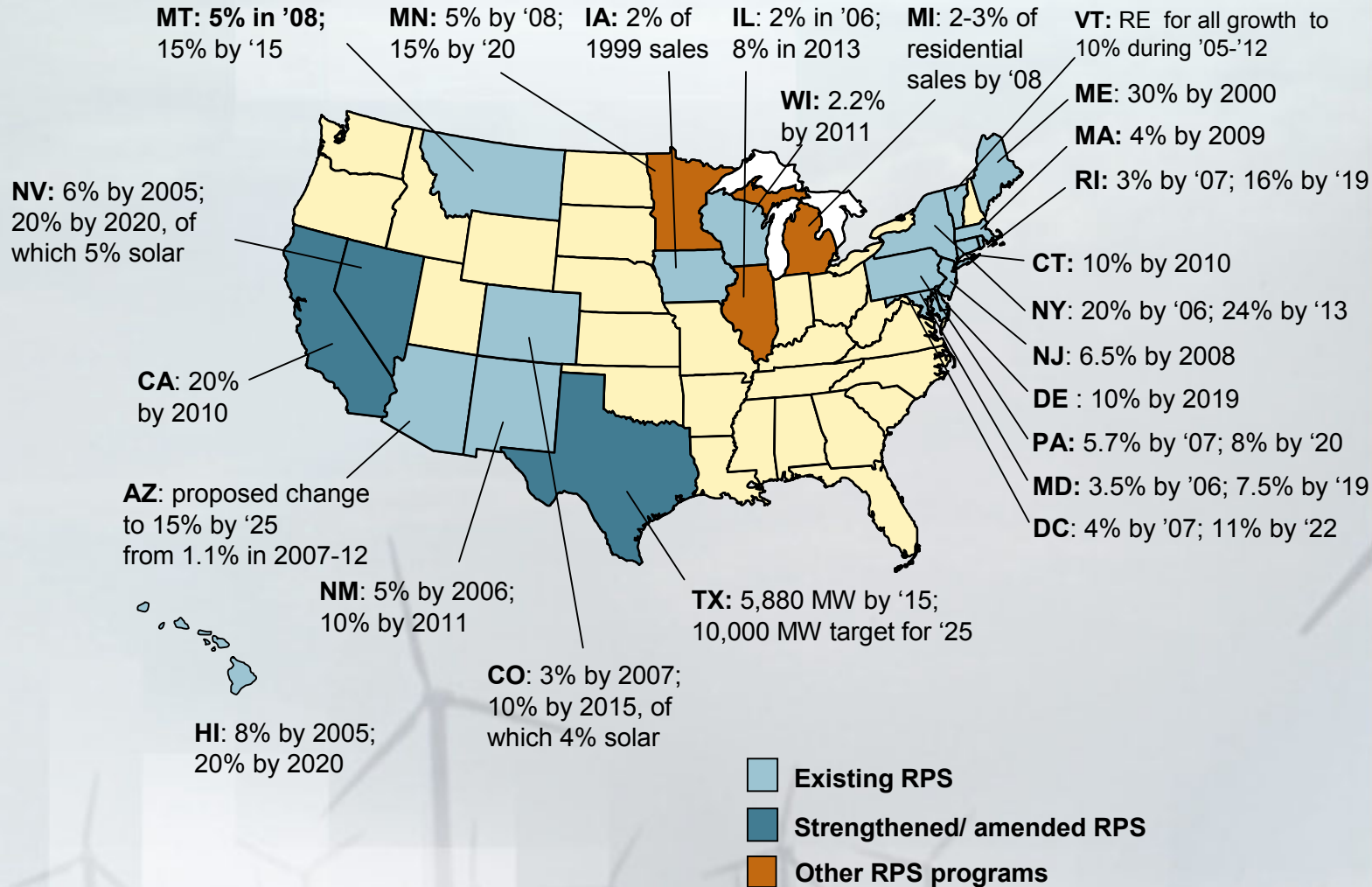
Carol B. White
Federal Energy Regulatory Commission

Green Power Marketing Conference
Austin, Texas
October 26, 2005

Renewable Energy: Drivers

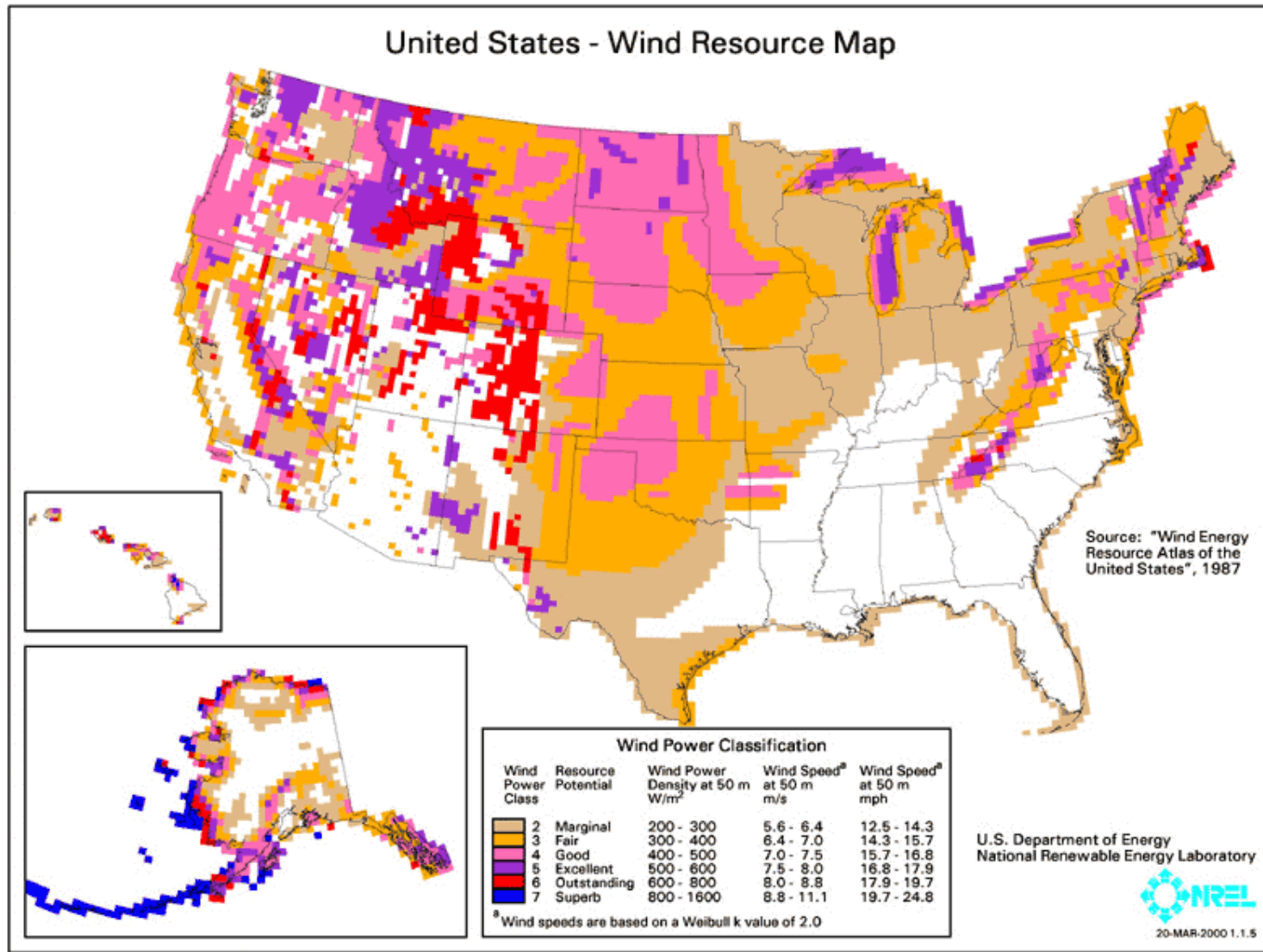
-  **Renewable Portfolio Standards: 22 States and D.C.**
-  **Public desires**
-  **EPACT 2005:**
 -  **renewed PTC through 2007**
 -  **directed utilities to diversify fuel supplies**
-  **Rising cost of alternative Fuels**
-  **Environmental Rules**
-  **Technological Advances**
-  **Energy Independence**
-  **Corporate perception that green is good**

RE drivers: State RPS Requirements



Sources: FERC analysis, derived from data in: Edison Electric Institute; Energy Information Administration; Interstate Renewable Energy Council; Lawrence Berkeley National Laboratory; State PUC sites and interviews; Union of Concerned Scientists

Geographic diversity of RE resources



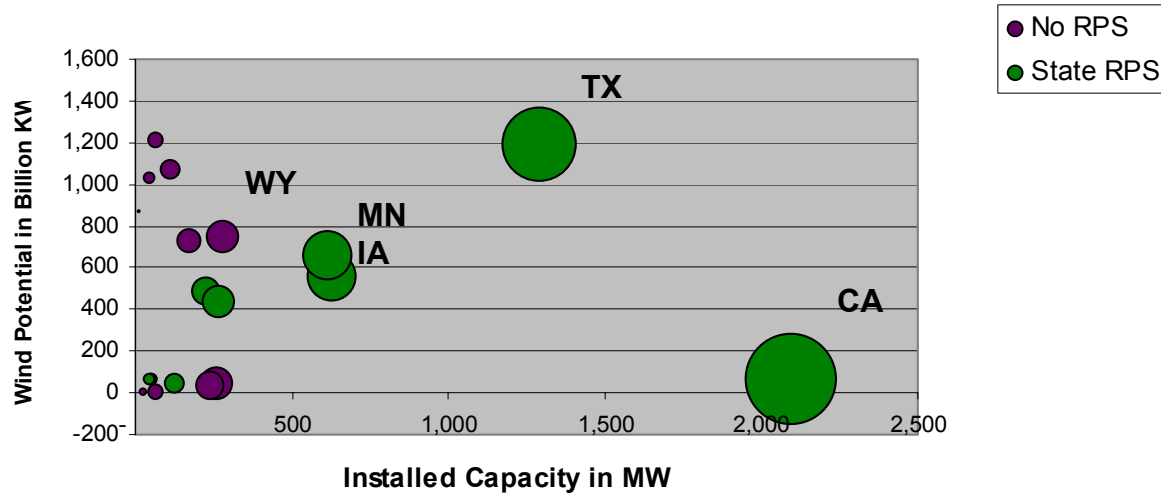
Source: U.S. Department of Energy, National Renewable Energy Laboratory

More recent State maps showing Native American lands are at: http://www.eere.energy.gov/windandhydro/windpoweringamerica/wind_maps.asp

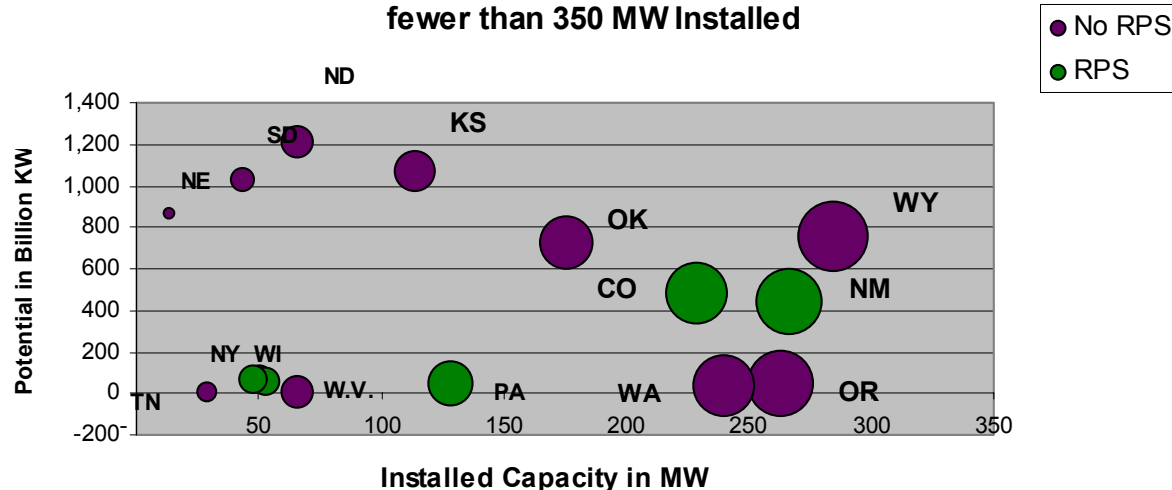
Policy is an important driver of RE growth:

Wind example – potential kWh vs. installed MW

Top 20 States by Installed Capacity 2004






Inset: less than 1400 MWh potential, fewer than 350 MW Installed







Getting RE to Market: Challenges



Generation siting:

-  Layout planning for renewable generators (wind, solar, geothermal) is different than for traditional large generators
-  Optimal renewable resources often not near transmission or load
-  Securing financing





Transmission use and planning: **

-  Transmission expansion or upgrades often needed
-  Timeline for building RE generation far shorter than for major transmission upgrades
-  Transmission lines may be fully subscribed on contractual, but not physical basis
-  Regional coordination necessary for siting

Interconnection and Wholesale rules: **









-  Original rules designed for large generating stations
-  Small generators (20 MW or less) face net-metering, other challenges

Integration:

-  Accurate forecasting needed for transmission operators
-  Reliability concerns
-  Disparity of RPS standards; regional diversity of RE resources
-  Lack of national definition on RECs to make MW fungible, tradable

** where public policy can help overcome barriers




RE: Policy Opportunities

-  Advance state initiatives and public desires “public good” criteria
-  Fair and non-discriminatory rules. FERC can:
 -  Re-examine rules written for traditional large, non-weather-driven generation
 -  Amend rules where unduly discriminatory to give renewables a level playing field with existing generation
-  EPACT 2005-driven policies:
 -  DOE will designate “national interest transmission corridors”
 -  FERC will have back-stop transmission siting authority in these areas
 -  Create transmission infrastructure investment incentives



FERC Initiatives: Interconnection for Wind Energy

Order 661 incorporates “Grid Code:” standards for generators > 20 MW
(as “Appendix G” to Order 2003, Large Generator Interconnection Rule; issued June 2, 2005)


Technical (Equipment) Standards:

-  Staying connected to the grid during voltage disturbances: Low-Voltage Ride-Through (LVRT)
-  Communications Protocol between wind generators and transmission providers (SCADA)
-  Providing reactive power to the grid



Process Standards:

-  Entering the Transmission Queue
-  Providing data to the Transmission Provider for System Impact Study

Phased Transition period

 LVRT delayed while AWEA & NERC resolved reliability issues (comments were due 10/3)

Order 2006: “Small Generator Interconnection Rule:” \leq 20MW

-  (issued May 12, 2005) – no separate rules for wind generation necessary
-  rehearing pending on some issues (RM02-12)

RE: Wholesale Challenges & Opportunities

FERC's Order No. 888 creates challenges for intermittent resources:

- Imbalance penalties
- Network or point-to-point transmission service:
 - Choices include long-term firm or non-firm
 - Wind – and other intermittent resources – need something in between
- Accurate forecasting

NOPR on Imbalance Provisions for Intermittent Resources:











(Noticed of Proposed Rulemaking, 4/14/05)


- distinguishes between energy and generator imbalances
- proposes generator bandwidth of +/- 10%
- proposes economic vs. punitive settlement for deviations
- reiterates 20-minutes ahead scheduling correction




Issues raised in Wholesale Conference & comments also addressed in Notice of Inquiry on Order 888 reform

Renewable Energy: Policy Opportunities

 **Order No. 888 Reform: what changes are needed to prevent undue discrimination?** (Docket RM05-25-000, 9/16/2005) e.g.:

-  **Amending transmission pricing policies**
-  **Enhancing efficient use of the existing transmission grid**
-  **Expanding existing transmission services**
-  **Examining queuing procedures & requests for transmission service**
-  **Are rollover rights fair?**
-  **Has obligation to expand transmission capacity been used to discriminate?**
-  **Is there hoarding of unused firm or network transmission capacity?**
-  **Is reservation priority system fair?**
-  **Facilitating regional transmission planning**
-  **Examining ancillary services, including energy and generator imbalances**


 **Other reforms possible:**


-  **Eliminate rate-pancaking in non-RTOs / ISOs**
-  **Work with regional planning boards and States**
-  **Consult with native tribes**

FERC Initiatives on RE, especially Wind Power

“Assessing the State of Wind Energy in Wholesale Electricity Markets”

 Staff paper: <http://www.ferc.gov/legal/ferc-regs/land-docs/11-04-wind-report.pdf>

 Technical Conference in Denver, CO, December 1, 2004:
<http://www.ferc.gov/EventCalendar/EventDetails.aspx?ID=1368&CalType=%20&CalendarID=116&Date=12/29/2004&View=List>

 Technical workshop with BPA and WECC on wholesale electric transmission services, Portland, OR, 3/16–17/2005: <http://www.ferc.gov/EventCalendar/Files/20050303091122-RM05-7-000.pdf>

Proposed Rule on Imbalance Provisions for Intermittent Resources (Dockets RM05-10-000 and AD04-13-000):

 Press release: <http://www.ferc.gov/press-room/pr-archives/2005/2005-2/04-13-05-windnopr.asp>

 NOPR: <http://www.ferc.gov/whats-new/comm-meet/041305/E-4.pdf> (4/14/05)


Standardization of Small Generator Interconnection Agreements & Procedures: (5/12/2005)

 Press release: <http://www.ferc.gov/press-room/pr-archives/2005/2005-2/05-12-05.asp>

 Order 2006: <http://www.ferc.gov/EventCalendar/Files/20050512110357-order2006.pdf>

Interconnection for Wind Energy, Order No. 661, Appendix G to Order 2003, (Issued: 6/2/2005)

 Press release: <http://www.ferc.gov/press-room/pr-archives/2005/2005-2/05-25-05-E-1.asp>

 Final Rule: <http://www.ferc.gov/whats-new/comm-meet/052505/E-1.pdf>

2004 State of the Markets Report, Office of Market Oversight. Chapter on Wind, pp. 233 – 236 (6/15/2005) <http://www.ferc.gov/EventCalendar/Files/20050615093455-06-15-05-som2004.pdf>

Notice of Inquiry on 888 Reform: “Preventing Undue Discrimination and Preference in Transmission Services” (9/16/2005) (Docket RM05-25-000): <http://www.ferc.gov/whats-new/comm-meet/091505/E-1.pdf>

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